39349   RAYZ, A. B.

Funktsional'noye sostoyaniye podzheludochnoy zhelezy posle rezektsii zheludka.
Vestnik khirurgii im. Grekova, 1949, No 5, s. 31-36. - Bibliogr: 9 nazv.

RAYZ, A. B.

"Criterion of Gastritis Subsequent to Resection of the Stomach," Khirurgiya, No. 10, 1949. Mor., Clinic General Surgery, Crimean Medical Inst. im. I. V. Stalin, -c1949-.

RAYZ, A.B.

Functional state of the liver following gastric resection. Klin. med., Moskva 29 no.1:86 Jan 51.   (CLML 20:5)

1. Of the Clinic of General Surgery (Head—Prof.A.B.Rayz), Cri- mean Medical Institute, Simferopol'.

RAIZ, A.B.

[Stomach ulcers; their treatment and prevention] Iazvennaia bolezn' ,
zheludka, ee lechenie i preduprezhdenie. Alma-Ata, Kazakhskoe gos.
izd-vo, 1955. 23 p.   (MIRA 9:11)
          (STOMACH--ULCERS)

USSR/Human and Animal Physiology. Digestion. The Stomach.   T-7

Abs Jour: Ref Zhur-Biol., No 12, 1958, 55735.

Author : Rayz, A.B.
Inst   : Institute of Clinical and Experimental Surgery, Academy
           of Sciences Kazakh SSR.
Title   : The Role of the First and Second Signal Systems in the
           Secretory Activity of a Pathologically Modified Stomach.

Orig Pub: Tr. In-ta klinich. i eksperin. khirurgii. AN KazSSR,
           1957, 3, 30-38.

Abstract: In patients suffering from gastric or duodenal
           ulcers, from cancer or from polynosis, irritations
           of the first or second signal systems (pending
           surgery and the environment of the operating room)
           have depressed gastric secretion in hungry patients,
           and increased its acidity (in some of the patients).

Card   : 1/1

EXCERPTA MEDICA Sec 9 Vol 13/10 Surgery Oct. 59

5977. THE STOMACH EVACUATION DISORDERS AFTER GASTRIC RESECTION
(Russian text) - Raiz A. B. - VESTN. KHIR. 1959, 82 2 (39-42)

325 gastric resections in ulcer and cancer diseases are found to indicate that gastric contents evacuation only very rarely shows impairment, the latter being due, in the main, to technical faults. The following points are to be taken into consideration: (1) the applying of Finsterer's technique; (2) to join the gut to the stomach at the greater curvature separate silk sutures (2-3 in number) through the serous and muscular layers of both components are to be applied at maximum 2 mm. from the line of severance to counteract possible narrowing of the gastric outlet; (3) the vertical incision on the stomach from the lesser curvature on downward should end at the superior third of the anastomosis and thereupon continue the cleavage line obliquely in the proximal direction turning for 2 cm. to the left near the greater curvature; the oblique position of the gut, reducing the possibility of its kinking and preventing the ensuing duodenal stasis, is helped by a removal of the curvature segment to preserve the outlet of the stomach from an occlusive spur formation; (4) in emergency cases the time of the operation should not exceed 1-1.2 hr.; (5) the patient should not be fed before the 3rd postoperative day when reaction to the intervention will be greatly diminished.

INST. — Iz fakul'Tetskoy Khirurgicheskoy Kliniki (zav.-prof.A.B.RAYZ) lechebNogo fakul'Teta Alma-Atinskogo meditsinskogo inst.

NOVIKOV, Yu.N., kand. tekhn. nauk; NAUM... , Yu.N., inzh.; PAY... , ..B., inzh.

Inductance of the short networks of silicon carbide furnaces.
Prom. energ. 19 no.12:11-14 D '64.

(MIRA 18:3)

VUKOLOV, Ye.A.; NEGOVSKIY, A.S.; IORDANOV, Z.A.; MALYSHEV, V.I.;
    MASHNITISKIY, A.A.; KLYASHTORNYY, I.A.; RAYZ, A.B.; POLONSKIY, S.M.

    Extraction of electrocorundum from bauxite agglomerate. Prom. energ.
    15 no.10:16-18 O '60.   (MIRA 13:11)
                    (Bauxite)   (Corundum)

LEYTES, V.G., podpolkovnik meditsinskoy sluzhby; KAYZ, M.I., podpolkovnik
meditsinskoy sluzhby; YAKOVLEVA, A.A.

Prevention of epidermophytosis among replacements. Voen.-med. zhur.
no.8:72-74 Ag '61.   (MIRA 15:2)
(DERMATOPHYTES)   (MEDICINE, MILITARY)

RAYZACHER, Julia

    Laminates abroad. Przegl wlokien 13 no.10:Suppl:Biul inst
    wzor przem 14 no.3:1-2 O '64.

RAYZACHER, Julia

Textile goods with multipart structure. Przegl wlokien 18
no.11:Suppl;Biul Inst wzor przem 14 no.4:1-2 N '64.

RAYZACHER, Julia

Pattern making for interior fabrics abroad; general tendencies.
Przegl wlokien 16 no.5:Suppl.: Biul inst wzorn przem 12 no.2:5-6 My
'62.

BLANK, Anna Fadeyevna; GORELENKOVA, Fekla Antonovna; RAZBASH, I.Ya.,
     retsenzent; LAUSTEN, A.G., red.; GUSEVA, A.I., red.;
     SHAPENKOVA, T.A., tekhn. red.

[Patternmaking, sewing and designing of women's clothing] Raskroi
poshiv i modelirovanie zhenskogo plat'ia. Izd.4., dop. i perer.
Moskva, Izd-vo nauchno-tekhn.lit-ry RSFSR, 1961.   421 p.
                                        (MIRA 15:1)
               (Dressmaking)

PIGULEVSKIY, G.V.; RAZBEGAYEVA, T.P.

Investigating the essential oil of Caropodium platycarpum
Schischk. Trudy Bot. inst. Ser. 5 no.8:28-31 '61.
(MIRA 14:7)

(Transcuacasia —Caropodium)
(Essences and essential oils)

RYKOV, V.; RAYZBERG, A., [Raisberh, A.]

Simplest machinery for making building materials. Sil'. bud. 13 no.11:
20-21 N '60.   (MIRA 13:11)

1. Nachal'nik konstruktorskogo byuro Ministerstva sel'skogo khcz-
yaystva USSR (for Rykov). 2. Starshiy inzhener-konstruktor konstruktor-
skogo byuro Ministerstva sel'skogo khozyaystva (for Rayzberg).
          (Tiles, Roofing)   (Brickmaking machinery)

KOVALENKO, O.Ya., nauchnyy sotrudnik; RAYZBERG, A.M., nauchnyy sotrudnik

Rod conveyer for feed distribution. Mekh. sil'. hosp. 11
no.10:23-24 O '60.   (MIRA 13:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanizatsii
i elektrifikatsii sel'skogo khozyaystva.
                    (Conveying machinery)

RAYZBERG, A.N.; KULAYEV. Yu.F., kand,ekonom.nauk; LYAPKALO, I.I.; SEREDA. I.A.

Uniform technology improves the standards of routing. Zhel.dor.transp.
47 nc.10:21-24 0 '65.   (MIRA 18:10)

1. Zamestitel' nachal'nika Chelyabinskogo otdeleniya Yuzhno-Ural'skoy
dorugi (for Rayzberg). 2. Zamestitel' nachal'nika zheleznodorozhnogo
tsekha Chelyabinskogo truboprokatnogo zavoda (for Lyapkalo).
3. Nachal'nik stantsii Kir-Zavod Yuzhno-Ural'skoy dorogi (for Sereda).

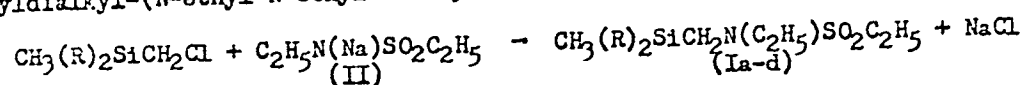ACC NR: AP7006246

AUTHOR: Masliy, L. K.; Razbegayeva, T. P.

ORG: none

TITLE: Studies in the area of silicon-containing acid amides. Part 2: Preparation of methyldialkyl-(N-ethyl-N-ethylsulfonylaminomethyl)silanes

SOURCE: Zhurnal obshchey khimii, v. 37, no. 1, 1967, 250-252

TOPIC TAGS: amide, silane, IR spectrum

ABSTRACT: In an earlier work, L. K. Masliy developed a method for preparing silicon-containing amides by condensing trialkylhalomethylsilanes with sodium acyl amides. In order to extend this method to sulfamides, it was used to obtain a series of methyldialkyl-(N-ethyl-N-ethylsulfonylaminomethyl)silanes (I):

$$CH_3(R)_2SiCH_2Cl + C_2H_5N(Na)SO_2C_2H_5 \rightarrow CH_3(R)_2SiCH_2N(C_2H_5)SO_2C_2H_5 + NaCl$$
$$(II) \qquad\qquad\qquad (Ia\text{-}d)$$

The products obtained are shown in Table I. The molecular refraction of the SO_2N group was determined. Exaltation of the bond in N-trimethylsilylsulfamides was observed; it appears to be due to a $d_\pi - p_\pi$ conjugation between the nitrogen and

Card 1/2

ACC NR: AP7006246

Table 1. Constants of Synthesized Methyldialkyl-(N-Ethyl-N-Ethyl-sulfonylaminomethyl)silanes $CH_3(R)_2SiCH_2N(C_2H_5)SO_2C_2H_5$

Compound No.	R	Formula	Yield, %	BP (p in mm)	d_4^{20}	n_D^{20}	MR_D measured	MR_D calculated	M measured	M calculated
1a	CH_3	$C_8H_{21}NO_2SSi$	63	102.6—103.2° (2)	1.0175	1.4598	60.02	60.16	220, 221	223
1b	C_2H_5	$C_{10}H_{25}NO_2SSi$	65	132.4—132.8 (2)	1.0096	1.4689	69.23	69.18	250, 253	251
1c	$n\text{-}C_3H_7$	$C_{12}H_{29}NO_2SSi$	54	141.6—142.0 (2)	0.9850	1.4670	78.60	78.68	279, 282	279
1d	$n\text{-}C_4H_9$	$C_{14}H_{33}NO_2SSi$	51	149.0—149.5 (2)	0.9688	1.4672	87.97	87.78	304, 303	307

silicon atoms. On the basis of a study of IR spectra it is postulated that the S-C bond in the N-ethyl-N-ethylsulfonylaminomethylsilyl group has a high polarity. Authors are grateful to V. Ye. Sobol' for assistance in taking the spectra. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 07/ SUBM DATE: 27Dec65/ ORIG REF: 004/ OTH REF: 002

Card 2/2

ACC NR AT6035511   SOURCE CODE: UR/2531/66/000/185/0044/0054

AUTHOR: Son'kin, L. R.; Razbegayeva, Ye, A.; Terekhova, K. M.

ORG: none

TITLE: Meteorological conditions causing atmospheric pollution over cities

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 185, 1966. Voprosy atmosfernoy diffuzii i zagryazneniya vozdukha (Problems of atmospheric diffusion and air pollution), 44-54

TOPIC TAGS: micrometeorology, atmospheric air pollution, urban smog, dust, sulfur dioxide, sulfur compound, atmospheric precipitation

ABSTRACT: This article begins with a five-page survey of possible correlations between atmospheric pollution and meteorological factors. The authors relied chiefly on 1961-1963 data on dust and sulfur dioxide pollution supplied by the Leningrad Municipal Sanitation-Epidemiological Service. Samples were obtained at 14 points in Leningrad, usually twice a week, with some gaps of a day or more. Summer observations were more complete than winter observations. Data from Moscow, Donetsk, Makeyevka, Novosibirsk, Kemerovo, and Prokop'yevsk were utilized to some extent.

Card 1/6   UDC: none

ACC NR: AT6033511

     The first stage of the project was to get a general
picture of the atmospheric pollution in some cities,
especially in Leningrad. Cases in which dust concentra-
tions were above the maximum tolerance limit amounted to
17% of the total number of observations in Leningrad in
1961-1963, and excessive sulfur dioxide pollution provided
19%. The corresponding figures for Moscow (about 5000
samples) in 1962-1964 were 7% and 10%. The next step was
to construct graphs showing the variations of atmospheric
contamination in cities (Figs. 1 and 2). There was a
tendency for air pollution maxima to appear over the Don-
bass and the Kuzbass in the spring time. The data failed
to indicate the existence of winter maxima caused by heat-
ing of buildings, nor was there a definite analysis of
data on correlation between concentrations of dust, sulfur
dioxide, and wind directions. The dependence of dust and
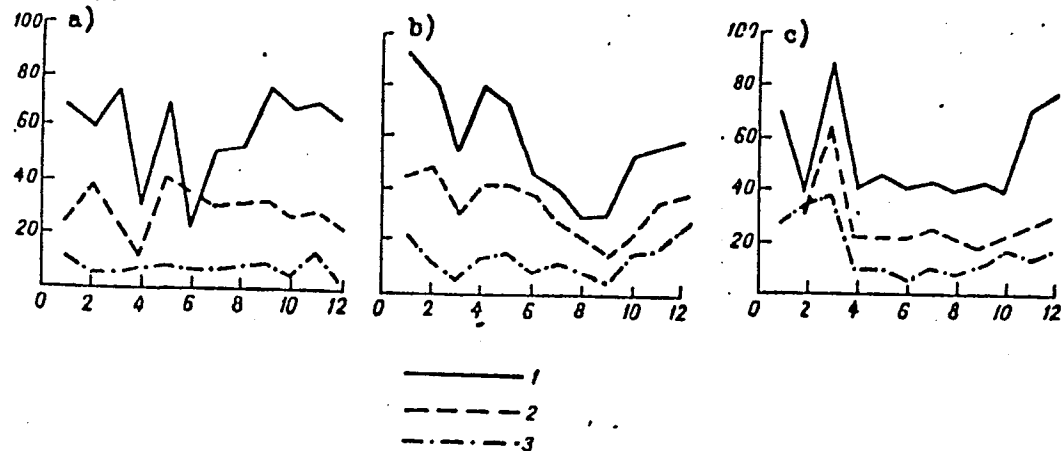
Card 2/6

ACC NR: AT6035511

Fig. 1. Annual rate of dust settling in Lenin-
grad, after N. M. Tomson

1 - Industrial areas; 2 - residential areas; 3 -
park zone; a - 1940; b - 1953; c - 1954.

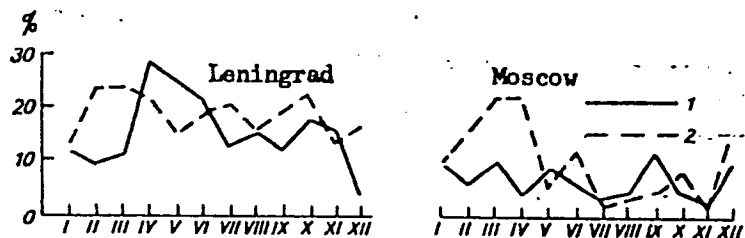Card 3/6

ACC NR: AT6035511

Fig. 2. Annual variation in frequency of dust
and sulfur dioxide concentrations exceeding the
maximum tolerable concentration

1 - Dust; 2 - sulfur dioxide.
sulfur dioxide concentrations on wind speeds is shown in
Fig. 3. As might be expected, strong winds were most
effective in cleansing the air. Although no data on reduc-

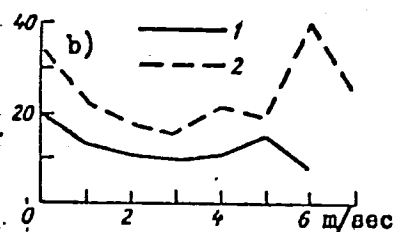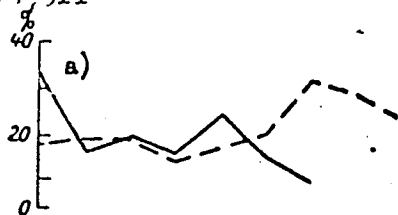Card 4/6

ACC NR: AT6036511

Fig. 3. Frequency of concen-
trations above the maximum
tolerable concentration as a
function of the wind speed

a - Sulfur dioxide; b - dust;
1 - during the cold half of
the year; 2 - during the warm
half of the year.

tion in pollution by precipitation was available, it was
possible to study the restoration of the background level
of contamination following precipitation; heavy precipita-
tion proved effective in clearing the air. Another, still
preliminary result, was that pollutant concentrations in
industrial cities like Leningrad generally are not deter-

Card 5/6

ACC NR: AT6035511

Table 1. Frequency (%) of dust con-
centrations exceeding the maximum
tolerable concentration under differ-
ent synoptic conditions

Time of year	Synoptic situation		
	Anti-cyclone	Cyclone	Intermediate field
Cold.	30	5	12
Warm.	22	9	19

mined directly by the sources of contamination, but by the
presence of some background concentration and are chiefly
associated with anticyclones, particularly with slow-moving,
strong anticyclones. Frequencies of dust concentrations
above the maximum tolerable level under various synoptic
conditions are given in Table 1. Orig. art. has: 4 figures and
3 tables.

[WA-50; CBE No. 14]
[ER]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 011/ OTH REF: 014

Card 6/6

POKROVSKIY, K.V.; FARZANE, N.G.; DANILOV, A.S.; RAZAMAT, M.S.

Determining condensate losses in layers during the exploitation of
condensate gas wells without maintaining reservoir pressure. Izv.
vys. ucheb. zav.; neft i gaz no.8:47-52 '58.   (MIRA 11:10)

1.Azerbaydzhanskiy industrial'nyy institut im. M. Azizbekova.
          (Apsheron Peninsula--Condensate oil wells)

RAYZBERG, B.A. (Leningrad); SAMSONOV, K.P. (Leningrad)

Applicability of a unidimensional model to the representation
of steady flow of a viscous incompressible fluid in a cylindrical
pipe with porous walls. Inzh.zhur. 4 no.1:127-129 '64.
(MIRA 17:4)

SOV/147-58-4-1/15

AUTHORS: Barabanov, A. T. and Rayzberg, B. A.

TITLE: Descent of an Artificial Satellite from its Elliptic
         Orbit (Snizheniye sputnika na ellipticheskoy orbite)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya
         Tekhnika, 1958, Nr 4, pp 3-8 (USSR)

ABSTRACT: The object of the article is to determine deviations from
         the elliptic orbit which the satellite would follow if
         there were no air resistance. The only disturbing force
         considered is the (frontal) air drag and since this is
         assumed small, the problem is solved by means of small
         perturbations method. Using vectorial notation, Eq.(1)
         gives the equation of motion, where:
         m - mass of the satellite;
         $\bar{v}$ - its absolute velocity;
         g_3 - gravitational acceleration at the ground level;
         r_3 - radius of the Earth;
         $\bar{r}$ - vector radius describing the position of the
             satellite with respect to the centre of the Earth;
         X - aerodynamic (frontal) drag force.
Card 1/4   Multiplying this equation vectorially by $\bar{r}$ ($\bar{e}_1$ and $\bar{e}_2$ are

Descent of an Artificial Satellite from its Elliptic Orbit

the unit vectors in mutually perpendicular directions – see Fig.1) Eq (2) is obtained (the law of swept areas) in which the suffix "O" denotes the initial values of the variables. The result of scalar multiplication of Eq (1) by v is Eq (3). Hence, by suitable substitutions (h_O, H_O, ψ and ϕ as defined in the article and putting $Z = \frac{1}{r}$) from Eqs (3) and (2), Eq (4) is derived. Assuming now small perturbations from the elliptic orbit as resulting from the aerodynamic drag (i.e. putting $z = z_* + \Delta z$ and $\phi^2 = 1 + \theta$ where the asterisk denotes the undisturbed conditions) Eq (4) transforms into Eq (6), which is considered as the starting point for the disturbed orbit. (For the undisturbed elliptical orbit it is taken $\varepsilon \gg 0.01$). Eq (6) is now linearized by assuming disturbances to be small, which is sufficiently accurate when

$$\Delta z \ll \frac{\varepsilon}{p} \quad \text{and} \quad \frac{d\Delta z}{d\varphi} \ll \frac{\varepsilon}{p}$$

Card 2/4

Descent of an Artificial Satellite from its Elliptic Orbit

and if small quantities of higher orders in relation to
Δz are neglected Eq (7) follows.   The coefficients of
this equation as well as the expression on the right of
the equation sign are determined approximately from the
case of free orbiting. Eq (7) can be written in the form
of Eq (8) and the functions $P(\varphi)$ and $Q(\varphi)$ are then
determined as shown in the text (Eqs 17 and 18 respectively)
on the assumption that C_x is constant and for the
conditions given by Eqs (15) and (16).   Further analysis
is carried for the cases when $\lambda I \ll \varepsilon$ (Eq 19). With
this limitation Eqs (20) to (24) are obtained. Taking
then that for small eccentricities (ε) there is

$\dfrac{v}{v_n}$ = 1 nearly, and using Eq (2) the time of motion is

found as shown in Eq (25). Again using small perturbations
method, i.e. letting $t = t_x + \Delta t$ and $r = r_x + \Delta r$, the
change of the periodic time Δt is obtained, Eq (26).
In this way, if the parameters p and ε of the
undisturbed orbit as well as the disturbance parameter λ
Card 3/4 and the variation of density of the air with height are

Descent of an Artificial Satellite from its Elliptic Orbit

SOV/147-58-4-1/15

known, the descent of the satellite and the variation of its periodic time can be determined.
There are 1 figure and 2 English references.

ASSOCIATION: Kafedra aerogazodinamiki (Chair of Aerogasodynamics) Leningradskiy voyenno-mekhanicheskiy institut (Leningrad Military Mechanical Engineering Institute)

SUBMITTED: February 19, 1958

Card 4/4

DULOV, V.G.; RAYZBERG, B.A.

Initial period in the formation of a jet. Izv.vys.ucheb.zav.; av.tekh.
4 no.4:30-33 '61.   (MIRA 15:2)

1. Leningradskiy mekhanicheskiy institut, kafedra aerogazodinamiki.
(Jets)

$\mathcal{BR}$

ACCESSION NR: AP4026962   S/0258/64/004/001/0127/0129

AUTHORS: Rayzberg, B. A. (Leningrad); Samsonov, K. P. (Leningrad)

TITLE: Applicability of a one-dimensional model for describing stationary flow of viscous incompressible fluid in a cylindrical pipe with penetrable walls

SOURCE: Inzhenerny*y zhurnal, v. 4, no. 1, 1964, 127-129

TOPIC TAGS: one-dimensional model, stationary flow, viscous incompressible fluid, cylindrical pipe, penetrable wall, hydrodynamic parameter, equation of motion, steady-state flow, porous wall, conservation of mass, conservation of impulse

ABSTRACT: By introducing coefficients whose magnitudes depend on the flow conditions into the equation of motion, the authors investigate the applicability of a one-dimensional model for describing fluid flow in pipes. They compute the pattern of distribution of hydrodynamic parameters of flow in a cross section and analyze (and justify under certain conditions) the possibility of the one-dimensional approach in a study of steady-state flow in a cylindrical pipe with porous walls. The flow velocity is assumed constant along the length of the pipe and

Card 1/2

ACCESSION NR: AP4026962

perpendicular to its axis. The authors assume the Reynolds number $Re = wR/\nu \gg 1$.
They also treat the case where the wall of the pipe has a flame front arising
as the result of burning of a mixture injected through the porous wall. Orig.
art. has: 14 formulas.

ASSOCIATION: none

SUBMITTED: 30Jan63   DATE ACQ: 15Apr64   ENCL: 00

SUB CODE: AI   NO REF SOV: 003   OTHER: 001

Card 2/2

S/147/61/000/004/004/021
E195/E135

AUTHORS: Dulov, V.G., and Rayzberg, B.A.

TITLE: Initial stage of wake formation

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya
             tekhnika, no.4, 1961, 30-33

TEXT: This work is based on the following scheme of wake
formation. The shock wave spreads in an axially-symmetrical
channel, bounded by solid walls. At the instant t = 0, the
wave reaches the outlet and passes into the atmosphere. During
this process an infinitely small section of the gas column, which
trails the wave, spreads beyond the limits of the channel where
an infinitely thin annular break is then formed. The disintegra-
tion of this break leads to the formation of a diverging, rapidly
decaying subsidiary shockwave, a rarefied wave, disturbing the
uniform stream behind the front of the main shockwave and the
steady-state break, which constitute the boundaries of the wake.
By ignoring the slight bending of the plane of the main wave
front, it is possible to consider the formation of the wake as a
continuous process resulting from the disintegration. The initial
Card 1/3

Initial stage of wake formation

parameters of this disintegration may be found from the relations
of the "one-dimensional" theory discussed in a paper by
K.P. Stanyukovich [Ref.1: Elementy prikladnoy teorii neustanoviv-
shikhsya dvizheniy gaza ("Applied theory for non-steady motion of
gas"), Oborongiz, M., 1953]. The important relationship between
the two pressure ratios P_2 ($P_2 = P_2/P_1$) and $\bar{P}$ ($\bar{P} = P/P_1$) is
given in the form:

$$\frac{2}{k-1}\left[1 - \frac{P_2}{\bar{P}}^{\frac{k-1}{2k}}\right] = \frac{2}{k(k-1)} \frac{\sqrt{1 + \frac{k+1}{k-1}\bar{P}}}{\sqrt{1 + \frac{k+1}{k-1}\bar{P}_2}} - \frac{\bar{P}_2 - 1}{\sqrt{\bar{P}\left(\frac{k+1}{k-1} + \bar{P}\right)}} \quad (5)$$

where: P_2 is the pressure behind the shockwave of disintegration,
P_1 is the atmospheric pressure, and P the pressure behind the
main shockwave. If the pressure is in the range $2 < P < 200$ and
the adiabatic exponent $K = 1.4$, then a linear function
$\bar{P}_2 = 0.24\bar{P} + 1.2$ may be used; the error due to this approximation
does not exceed 10%. Fig.2 shows a graph representing the
Card 2/4

Initial stage of wake formation   S/147/61/000/004/004/021
                                         E195/E135

trajectory of the boundary point of the shockwave and based on values of $P_o = 25$ kg/cm^2 and K = 1.4.

The form of the zone excited by the movement of the wave is roughly conical.

There are 2 figures.

ASSOCIATION: Kafedra aerogazodinamiki, Leningradskiy
             mekhanicheskiy institut
             (Department of Aerogasdynamics, Leningrad Institute
             of Mechanics)

SUBMITTED: November 9, 1960

Card 3/4

S/186/61/003/005/012/022
E071/E485

AUTHORS: Razbitnaya, L.M., Korovina, I.A.

TITLE   An investigation of complexes of cerium, yttrium and
              uranyl with some chelate compounds. 1. The determination
              of the composition of complexes of Ce(III), Y(III) and
              U(VI) with diethylenetriaminepentaacetic and ethyl-
              ester-diamintetraacetic acids

PERIODICAL: Radiokhimiya, v.3, no.5, 1961, 593-596

TEXT: In order to determine the composition of the above
complexes, a spectrophotometric method was used as some preliminary
experiments have shown that an addition of the above complexones
strongly changes the absorption spectra of solutions of salts of
pure elements. The measurements were carried out on a $C\Phi-4$
(SF-4) spectrometer at the following wavelengths: Ce(III) 300-250mμ
Y(III) 300-240 mμ. U(VI) 330-275 mμ. In the above ranges, the
light absorption by pure salts is insignificant but it is quite
considerable for the complexes formed. The measurements were done
in 10 cm long cells fitted with two quartz windows. Taking
advantage of a thick absorption layer permitted the use of solutions
of a low concentration (10^{-4} to 10^{-5} M). The pH of solutions was
Card 1/2

An investigation of complexes ...   S/186/61/003/005/012/022
                                      E071/E485

kept constant at 5.5 with an acetate buffer.   In preliminary
experiments the velocity of the formation of complexes was
determined.   It was established that the optical density is
attained immediately after the mixing of respective solutions and
subsequently remains constant, i.e. the complex compounds are
formed practically immediately.   The composition of complexes was
determined by the saturation method, i.e. by measuring optical
density of a series of solutions in which the concentration of one
of the components is cation constant and of the other complexone
variable.   It was found that under chosen conditions (pH = 5.5;
ionic force $\mu = 0.2$, concentration of elements 10^{-4} to 10^{-5} M)
cerium(III), yttrium(III) and uranium(VI) form with both acids,
complexes in which the ratio of cation to complexone is 1:1.
There are 2 figures and 6 references: 2 Soviet-bloc and 4 non-Soviet-
bloc.   The two references to English language publications read as
follows. Ref.2: M.J.Cabell. Analyst, v.77, 859 (1952);
Ref.3: T.Moiler, A.T.Moss, R.H.Marschall. J. Am. Chem. Soc., v.77,
3182 (1950).

SUBMITTED.   June 23. 1960
Card 2/2

RAYZIN, I.M.; GUTAREV, V.V., MAL'TSEVA, A.S.

Determination of the deflagrability of plastics. Zav.lab.
28 no.4.467-468 '62. (MIRA 15:5)

1. Moskovskiy institut khimi heskogo mashinostroyeniya.
(Plastics)   (Combustion)

BARDIN, I.; BELAN, R.; BEKHTIN, N.; BOYKO, V.; BORISOV, A.; BYCHKOV, V.; VASILENKO, S.; VINOGRADOV, V.; VISHNEVSKIY, A.; VODNEV, G.; DVORIN, S.; DZHAPARIDZE, Ye.; DIDENKO, V.; D'YAKONOV, N.; ZHURAVLEV, S.; ZAKHAROV, A.; IVANOV, I.; KIRSANOV, M.; KOLYADA, G.; KOROBOV, P.; LESKOV, A.; LUKICH, L.; LYUBIMOV, A.; MELESHKIN, S.; MYRTSYMOV, A.; PERTSEV, M.; PETRUSHA, F.; PITERSKIY, A.; POPOV, I.; RAYZER, D.; ROZHKOV, A.; SAPOZHNIKOV, L.; SEDOY, P.; SOKOLOV, P.; TEVOSYAN, I.; TIKHONOV, N.; TISHCHENKO, S.; FILIPPOV, B.; FOMENKO, N.; SHELKOV, A.; SHEREMET'YEV, A.

Fedor Aleksandrovich Merkulov. Koks i khim.no.7:62 '56. (MLRA 9:12)
    (Merkulov, Fedor Aleksandrovich, 1900-1956)

RAYZER, D.Ya.

D.IA. Raizer's report at the All-Union Conference of Construction
Engineers. Stroi.prom. 32 no.12:2-5 D'54.   (MLRA 8:3)

1. Ministr stroitel'stva predpriyatiy metallurgicheskoy i khimi-
cheskoy promyshlennosti.
          (Construction industry--Congresses)

RAYZER, D. ia.

Immediate tasks of the Ministry of Construction for Enterprises of the Metallurgical and Chemical Industries of the U.S.S.R. in fulfilling the sixth five-year plan. Stroiprom. 34 no.5:2-6 My '56.

(MLRA 9:8)

1. Ministr stroitel'stva predpriyatii metallurgicheskoy i khimicheskoy promyshlennosti SSSR.

(Factories) (Building)

RAYZER, D.Ya.

Secure further development in construction of the heavy industry enterprises. Stroi. prom. 35 no.3:2-5 Mr '57.   (MIRA 10:4)

1. Ministr stroitel'stva predpriyatiy metallurgicheskoy i khimicheskoy promyshlennosti.
(Construction industry)

SHPIOEL', I.S.; RAYZER, M.D.; MYAE, E.A.

Device for relative measurements of continuous magnetic fields.
Radiotekh.i elektron. 1 no.12:1515-1519 D '56.   (MLRA 10:2)
    (Magnetic fields)   (Electric measurements)

109-2-1-14/17

AUTHOR: Shpigel', I. S., Rayzer, M. D., and Myae, E. A.

TITLE: An Instrument for Relative Measurements of Alternating Magnetic Fields
(Pribor dlya otnositel'nykh izmereniy peremennykh magnitnykh poley)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol 2, Nr 1, pp 111-119 (USSR)

ABSTRACT: A description of an instrument for relative measurements of time-
alternating slightly non-uniform magnetic fields, based on the phenomenon of
nuclear magnetic-resonance absorption, is presented. The instrument
measures full field distribution, including the residual magnetic field. The
maximum measurable difference of fields in two points $\Delta H_{max} = 3\% H_0$. Error
$\pm 3\% H_{max}$. Measurements are made at $H_0 \simeq 160$ oersteds.
Particle accelerators and other engineering devices often require relative
measurements of time-alternating magnetic fields. The methods used so far
(ballistic, electron integrator, etc.) have one common shortcoming, viz., only
the alternating-field difference is measured and the residual field or a super-
imposed magnetization field is not included. The new instrument described in
the article is free from this shortcoming. The instrument has been developed
for measuring the injection field distribution of a 10-bev proton-synchrotron

Card 1/4

109-2-1-14/17

An Instrument for Relative Measurements of Alternating Magnetic Fields

magnet, AS USSR. As a block diagram, figure 2, shows the instrument con-
sists of a high-frequency oscillator, two identical amplification and signal-
forming channels, an integrating circuit, a power supply, and auxiliary units.
As the field reaches a certain value, depending on the pre-set oscillator fre-
quency, a signal of nuclear magnetic-resonance absorption appears. The sig-
nal is selected by a pulse-height detector, amplified and shaped. The passband
of the pre-amplifier is 1.5 - 6 kc. Signal-to-noise ratio at the pre-amplifier
output is about 40. For accurate indication of the time moment when the field
reaches a predetermined value, the signal is differentiated and amplified by a
wideband amplifier. The upper limit of the passband is 100 kc. An additional
time-selection circuit helps to suppress the effects of interference from other
electronic equipment in the room. The voltage front induced in a velocity pick-
up during the field change in the magnetic gap starts a phantastron delay circuit
which, in 20-60 m/sec, triggers a univibrator which generates the gate pulse.
The pulses from both trigger circuits (each about 1 µsec) are mixed and fed to
a flip-flop circuit. A negative square pulse appears at the output of the latter
circuit, its duration being equal to the time between the two field pulses. The

Card 2/4

109-2-1-14/17

An Instrument for Relative Measurements of Alternating Magnetic Fields

square pulse opens a tube integrator whose output is indicated by an indicating instrument. One field pickup and the velocity pickup are stationary; the second field pickup can be moved in the magnet gap. The field value sensed by the second pickup may be higher or lower than that at the point of the first pickup. The field non-uniformity sign is indicated by a special circuit. Some parts data and parameters of the high-frequency oscillator, field and velocity pickups, sign circuit, and integration circuit, are presented. Calibration of the instrument is explained. The overall error of the instrument is evaluated analytically and found to be equal to $\pm$ 3% H_{max}. The error of absolute field measurements is about 0.1%. The instrument was tested with the AS USSR proton-synchrotron, and the results of the measurements were found to precisely agree with those given by the ballistic-galvanometer method when an allowance for the residual field was made for the latter. Advice is offered for quick measurement of monotonic space-changing magnetic fields by means of a number of field pickups and an electron oscillograph. The authors are grateful to Professor V. A. Petukhov for his remarks in discussing the work and to A. N. Zinevich for his

Card 3/4

109-2-1-14/17

An Instrument for Relative Measurements of Alternating Magnetic Fields

part in building the instrument.

There are 7 figures and 4 references, one of which is Soviet, in the article.

ASSOCIATION: Fizicheskiy institut imeni P. N. Lebedeva AN SSR (the Institute of Physics imeni P. N. Lebedev, AS USSR)

SUBMITTED: June 1, 1956

AVAILABLE: Library of Congress

1. Magnetic fields--Measurement   2. Laboratory equipment--Performance

Card 4/4

PA - 2132

AUTHOR: SHPIGEL,I.S., RAYZER,M.D., MYAE,E.A.

TITLE: On the Dependence of the Amplitude of the First Harmonic Vibration of a Signal of the Magnetic Resonance Absorption Capacity of the Nucleus of Magnitude of Detuning. (Zavisimost' amplitudy pervoy garmoniki signala yadernogo magnitnogo resonanznogo pogloshche-niya ot velichiny rasstroyki. Russian).

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 2, pp 351 - 354 (U.S.S.R.)
Received: 3 / 1957   Reviewed: 4 / 1957

ABSTRACT: In the present work the relation between the order of the ampli-tude of the first Harmonic Vibration and the detuning (the difference of frequency of the generator and Lamor's precession) was de-termined. The investigation was carried out for the system: substance to be investigated - high frequency generator - i.e. on the con-dition, that the absorption signal be not saturated, that the amplitudes of the modulating field and the breadth of the ab-sorption line be commensurable. The obtained approximated formula makes it possible to draw the following conclusions: The steepness of the dependence of the amplitude (of the first harmonic vibration of the envelope of the oscillation voltage of the generator) on the amount of detuning is inversely proportional to the voltage amplitude a_0, is dependent upon the parameters of the generator and the appearence of the characteristics of the generator lamp, as well as inversely proportional to the square of the signal line width. Dependence on the volume of the substance and on the

Card 1/2

ABSTRACT: The sensitivity of a generator with self-excitation and back-
            coupling, caused by its parameters and the conditions for the
            reception of the signal were investigated. The equation for
            such a generator is written down, the first approximation of
            the solution is derived, and the equation for the occurring
            oscillations as well as for its amplitude a_o are written down.
            The transition process of the generator from one oscillation
            process to a new one is investigated. The latter is caused by the
            modification of the quantity $|\delta_o|$ at the expense of a sudden
            introduction of an additional decrease $\Delta\delta_o$ at the moment t=0.
            Finally, the expression for the square of the oscillation ampli-
            tude of the generator during the transition process is obtained.
            Herefrom the absolute quantity of the modification of the volt-
            age of the generator in dependence on its parameters and on
            time is obtained. The equations obtained in this manner make it
            possible to draw the following conclusions: 1.) At $\Delta\delta_o$=const.
            the absolute and relative modification of oscillation voltage

Card 1/2

Plasma Investigation by Means of Micro Radiowaves   53-64-4-5/11

in Plasma in the Presence of a High-Frequency Field)
the electron distribution function is discussed,
the interrelations between c_2 or $c_{3/2}$ resp. and σ_i/σ_r of x_1
$(x_1 \sim \omega/\gamma^2$, Morgenau, ref. 10) as well as the dependence of
ω_{crit} and λ_{crit} on the electron density. Chapter 2:
The resonator method, The method is explicitly dealt with
in theory and practice. Various plants for the determination
of the plasma parameters are given in block - diagram
representation. In chapter 3 the wave guide method is
discussed in theory and practice; a block-diagram of an apparatus
which by means of a microwave bridge makes possible the
measurement of plasma parameters is discussed in detail. In
chapter 4 the cross modulation method is dealt with explicitly
in theory and practice, and also in this case a block-diagram
of such a plant is described. Chapter 5 deals with the
determination of the coefficients of ambipolar diffusion,
recombination and electron collision frequencies. Finally
chapter 6 gives the experimental result partly compared with
the results obtained in theory. A series of diagrams show
the connections of the single coefficients of pressure,

Card 2/3

Plasma Investigation by Means of Micro Radiowaves   53-64-4-3/11

density, energy and field quantities. The most important
experimental data concerning recombination are given in
table 2. There are 26 figures, 2 tables, and 55 references,
of which 3 are Soviet and 52 English.

Card 3/3

21(7)

AUTHORS: Kovrizhnykh, L. M., Rayzer, M. D.,   SOV/30-59-2-57/60
             Abstracters

TITLE: Plasma Physics and the Problem of Controlled Thermonuclear
             Reactions (Fizika plazmy i problema upravlyayemykh
             termoyadernykh reaktsiy)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 121-126 (USSR)

ABSTRACT: This is a discussion of the compilation published in Moscow
             in 1958 by Kovrizhnykh and Rayzer, abstracters.

Card 1/1

24(3)

SOV/56-37-2-41/56

AUTHORS: Rayzer, M. D., Grebenshchikov, S. Ye.

TITLE: The Localization of a High-frequency Induction Discharge

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
             Vol 37, Nr 2(8), pp 564-565 (USSR)

ABSTRACT: This is an investigation of a high-frequency induction dis-
             charge in an axially symmetric magnetic field in the pressure
             range of from 1 to 100 mm Hg in various gases (hydrogen, air,
             helium). This discharge was produced by a self-excitation-
             oscillator (150 kw) equipped with GU-12A tubes. The pulse dura-
             tion was 1 μsec, the frequency 15 mc and the plate voltage was
             15 kv. Further details concerning the apparatus are given. The
             discharge was excited in a cylindrical vacuum chamber (diame-
             ter 28 cm, h = 3 cm). A figure shows typical slow-motion photo-
             graphs of the discharges in different gases, which were taken
             with the apparatus SFS-2. The slit of the lens of the photo-
             recorder was arranged parallel to the radius of the vacuum
             chamber. The helium discharge exhibits the particular feature
             that the plasma ring forming at the moment of breakdown sepa-
             rates into two simultaneously existing coils. The frequencies

Card 1/4

The Localization of a High-frequency Induction Discharge

of the plasma coils are, under otherwise approximately equal·
conditions, inversely proportional to the specific gravity of
the gas: for air 16,000 c , for helium 6,000 c., for hydrogen
4,000 c . The current in the winding is about 200 a and the
field strength of the vortex-like electric field is $\sim$100 v/cm.
The current in the plasma coil is determined by its inductivi-
ty. Spectroscopical measurements of the discharge in hydrogen
under a pressure of 10 mm Hg (spectrometer ISP-50) showed that
only mono-atomic hydrogen ions are present in the discharge
channel. The electron temperature determined from the relative
intensity of the lines H_α, H_β, and H_γ was $\sim$5,000°, which cor-
responds to a plasma conductivity of 2.10^{13}. In an almost
homogemeous magnetic field the nature of the discharge is some-
what modified: in discharges in helium and air the current
flows in a localized domain along the side walls of the chamber,
but no distinctive plasma coils are formed. In a discharge in
hydrogen a clearly bounded coil is observed, the small radius
of which is about 5 mm. The oscillations of the large radius
are attenuated much faster than in earlier cases mentioned. The

Card 2/4

SOV/56-37-2-21/56

The Localization of a High-frequency Induction Discharge

plasma coils in a homogeneous magnetic field should decrease
their large radius only by a contraction towards the center of
the vacuum chamber owing to the action of electrodynamic forces.
This may be caused by the smallness of the electrodynamic forces
and by the existence of a strong friction owing to the high gas
density. The following has been found: In a high-frequency dis-
charge under pressures exceeding 1mm Hg clearly bounded plasma
coils are produced, which have been torn away from the walls of
the vacuum chamber and which exist during the length of the pulse
of the high-frequency magnetic field. The authors express their
gratitude to R. A. Latypov for his participation in constructing
the apparatus and in carrying out the experiment, to V. A.
Kiselev for carrying out the spectroscopical measurements and
L. M. Kovrizhnykh, M. S. Rabinovich and I. S. Shpigel' for help-
ful discussion of the results. There are 1 figure and 3 Soviet
references.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (In-
stitute of Physics imeni P. N. Lebedev of the Academy of Sci-
Card 3/4   ences, USSR)

Rayzer, M. D.

81681
S/057/60/030/05/10/014
B012/B056

24 2/20
/0. 2000 (A)

AUTHORS: Andryukhina, E. D., Grebenshchikov, S. Ye., Rabinovich, M.S.,
Rayzer, M. D., Safronov, A. Ya., Shpigel', I. S.

TITLE: Some Characteristic Features of Inductive Gas Discharges

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 5,
pp. 529 - 538

TEXT: The present paper was read at the 4th International Conference on
ionization processes held at Upsala in 1959. The authors carried out ex-
periments for the purpose of explaining the influence exerted by some
phenomena upon the dynamics of the plasma, which are described. The
experiments were carried out in axially symmetric homogeneous and non-
homogeneous magnetic fields within a wide frequency range under various
ratios between the inductive resistance and the effective resistance of
the plasma. The following of the phenomena mentioned were investigated:
the "capture" of the magnetic field by the moving plasma, the skin effect,
and the shock waves, Fig. 1 shows the oscillogram of the complete current
in a discharge in hydrogen, and Fig. 2 shows a slow-motion picture of the

Card 1/3

81681

Some Characteristic Features of Inductive Gas Discharges

S/057/60/030/05/10/014
B012/B056

discharge. Measurements of current distribution showed that during the first half-period of the field variation a re-distribution of the current according to the vacuum chamber radius takes place. In Fig. 3a the device for investigating the discharge in an axially symmetric field, the so-called "magnetic mirror" is shown schematically. Fig. 3b shows the dependence of the current generated by special windings upon radius R and distance z. From the oscillograms in Fig. 4 it may be seen that the current in the gas during the first half-period of the field change is due only to the effective resistance of the plasma. The current polarity reversal shown on the oscillograms and the instantaneous current distribution in Fig. 6a indicating the existence of a considerable return current prove the "capture" of part of the magnetic flux by the plasma. The investigations of the skin effect and of the shock waves described showed that in the here investigated configurations of magnetic systems and vacuum chambers a cylindrical shock wave is formed in the breakdown in the range of $5 \cdot 10^{-1} \div 10^{-2}$ torr. During its motion it heats the gas and partly ionizes it. With propagation of the wave the conductivity range increases, and the currents generated within this range may, in the case of a skin effect, compensate the entire exterior magnetic field in the larger part

Card 2/3

81681

Some Characteristic Features of Inductive Gas Discharges

S/057/60/030/05/10/014
B012/B056

of the chamber. At high discharge frequencies $(300 \div 700 \text{ kc/s})$ a sufficiently high conductivity of the plasma is necessary in order that a skin layer having a thickness that is smaller than the height of the chamber, may occur. Such a conductivity is attained after the passage of 2 to 3 shock waves through the vacuum. At frequencies of 60-100 kc/s the thickness of the skin layer is greater than the height of the vacuum chambers used in the present investigation and some other papers (Refs. 4 and 5), and no effects were observed in the distribution of the current on the walls and also no screening of the outer field. Evaluations show that in the here described experiments a qualitative relation

$\delta \sim \omega^{-1/2}$ is observed. No more accurate data could be found. δ is the thickness of the skin layer, ω - the frequency of the external field. Academician V. I. Veksler is thanked for discussing the paper with the authors. There are 13 figures and 8 references: 5 Soviet and 3 English.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskva (Institute of Physics imeni P. N. Lebedev of the AS USSR, Moscow)

SUBMITTED: December 4, 1959
Card 3/3

81666
S/056/60/038/06/01/012
B006/B056

/0. 2000 (A)

AUTHORS: Grebenshchikov, S. Ye., Rayzer, M. D.

TITLE: Skin Effect and Shock Waves in an Induction Gas Discharge

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 6, pp. 1665-1667

TEXT: The authors investigate the gas discharge in an axially symmetric magnetic field at a frequency of $f = 300$ kc/sec; the magnetic field was generated by means of condenser battery discharges, the parameters of condenser and coil are given. The principal investigations were carried out in a closed air- and hydrogen-filled chamber within the range $p = 5 \cdot 10^{-1} - 10^{-2}$ torr. The maximum current I_g in the gas amounted to 15 ka. $\omega L/R \gg 1$ held for the ratio between inductive and effective plasma resistance. Fig. 1 shows the magnetic field distribution in the central plane of the discharge chamber at a field strength in the center of $\sim 1.5 \cdot 10^{3}$ oe. Fig. 2 shows the radial current distribution. The

Card 1/3

81666

Skin Effect and Shock Waves in an
Induction Gas Discharge

S/056/60/038/06/01/012
B006/B056

diagram shows that after two half-periods of the current practically the entire magnetic field is concentrated in the current layer and no field exists any longer in the chamber center. As shown by high-speed photographs (Fig. 3), a luminous ring forms at the instant of the discharge on the vacuum chamber wall, which is about 3 mm wide and is as high as the chamber. The ring moves, contracting, toward the chamber center, where its brightness increases abruptly. The primary velocity of motion of the ring $v = 2 \cdot 10^6 \div 1.5 \cdot 10^7$ cm/sec depends on the amperage in the gas, the nature of the gas, and pressure, and agrees well with the formula $v \sim (I_g/p)^{1/2}$ (Fig. 4). The contraction rate of the ring decreases the more it approaches the center. This narrow luminous ring represents the front of a shock wave. The character of the current and field distributions in the presence of an ionized gas in the entire volume of the vacuum chamber proves the existence of a skin effect which occurs in the plasma like in a metal. The skin depth is ~3 cm, from which the conductivity of the plasma may be estimated at $7 \cdot 10^{13}$ cgs units. In spite of the propagation of shock waves, the current layer keeps away from the lateral

Card 2/3

Skin Effect and Shock Waves in an
Induction Gas Discharge

81666
S/056/60/038/06/01/012
B006/B056

wall of the chamber during the entire discharge. The existence of a
strongly circuital electric field (E~ 400 v/cm) in each half-period of
the current causes a discharge on the chamber wall, and the marked skin
effect occurring on this occasion leads to a screening of the magnetic
field from the inner part of the chamber. The authors finally thank
R. A. Latypov and A. G. Frank for taking part in the experiments, and
L. M. Kovrizhnykh, M. S. Rabinovich, A. A. Rukhadze, and I. S. Shpigel'
for discussions. There are 4 figures and 4 references: 3 Soviet.

SUBMITTED: December 14, 1959

Card 3/3

RAYZER, M.D., SYTOVICH, V.N.

Mechanism underlying the X-ray and neutron radiations from
high-power pulse discharges. Atom. energ. 17 no.3:185-
188 S '64.   (MIRA 17:9)

ACC NR: AT6033041   SOURCE CODE: UR/2504/66/032/000/0112/0129

AUTHOR: Danilkin, I. S.; Kovrizhnykh, L. M.; Rayzer, M. D.; Tsytovich, V. N.

ORG: none

TITLE: Nonlinear effect in a plasma without collisions and possible prospects for their use

SOURCE: AN SSSR. Fizicheskiy institut. Trudy, v. 32, 1966. Fizika plazmy (Plasma physics), 112-129

TOPIC TAGS: nonlinear effect, plasma dynamics, plasma electromagnetic wave

ABSTRACT: The present article is of the review type (35 literature references) and the authors state that it is primarily based on the theoretical results of a series of previously published articles. After an extended mathematical introduction, the authors consider the subject of the induced dissipation of transverse waves and their transformation into longitudinal waves. The next two subsections deal with processes of disintegration and merging of waves in a plasma, and processes of three-plasma dissipation. The next main heading is the nonlinear transformation of transverse electromagnetic waves into longitudinal plasma waves. Following this is a treatment of the acceleration of clusters in a plasma using electromagnetic waves. The final section of the article concerns the possibility of the generation of transverse

Card 1/2

ACC NR: AT6033041

electromagnetic waves at the expense of nonlinear effects accompanying the passage of a beam through a plasma. "The questions treated here were brought to our attention by M. S. Rabinovich. An active part in working out questions in the theory of nonlinear effects was taken by A. K. Gaylitis. For many discussions touching on the problem, the authors are very grateful to Academician V. I. Veksler, M. S. Rabinovich, and Ya. B. Faynberg." Orig. art. has: 41 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 038/ OTH REF: 001

Card   2/2'

ACC NR: AT6033043   SOURCE CODE: UR/2504/66/032/000/0165/0172

AUTHOR: Danilkin, I. S.; Rayzer, M. D.; Tsytovich, V. N.

ORG: none

TITLE: Acceleration of particles with interaction between high frequency fields and a plasma

SOURCE: AN SSSR. Fizicheskiy institut. Trudy, v. 32, 1966. . Fizika plazmy (Plasma physics), 165-172

TOPIC TAGS: particle acceleration, plasma magnetic field, traveling wave interaction

ABSTRACT: The present article analyzes several mechanisms for the acceleration of the individual particles of a plasma acted upon by a high frequency field. It considers the conditions under which data can be taken on the mechanism of acceleration, and offers an evaluation of the mean values of the energy which can be collected by the ions and the electrons. The article starts with a mathematical development of the problem of acceleration brought about by waves with a fixed phase in a weak high frequency field, and then goes on to a consideration of the same problem with waves of random phase in weak high frequency fields. It concludes with the derivation of mathematical expressions for the acceleration of particles in a strong high frequency field. "In conclusion the authors thank M. S. Rabinovich for discussion of the problem." Orig. art. has: 25 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 002
Card 1/1

ACCESSION NR: AP4040308   S/0057/64/034/006/1040/1049

AUTHOR: Rayzer, M.D.; Strelkov,P.S.; Frank, A.G.

TITLE: Localization by a quadrupole magnetic field of a linear high frequency current in a gas

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 1040-1049

TOPIC TAGS: plasma, gas discharge, discharge plasma, electric discharge, discharge tube, plasma-magnetic field interaction

ABSTRACT: The authors investigate the effect of a quadrupole magnetic field on the configuration of a 3.2 megacycle/sec linear discharge in hydrogen and air at pressures from 0.006 to 5 mm Hg and currents from 0.3 to 3.0 kA. The discharge was excited by ten 17 turn toroidal coils surrounding the 7.3 cm diameter 72 cm long discharge tube and forming part of the anode circuit of a self-excited oscillator operated with 1 millisec pulses. Plane metal electrodes, 4 or 6 cm in diameter, were located at each end of the discharge tube. These electrodes were connected externally through capacitors and a system of four metal rods parallel to and equidistant from the axis of the tube. Discharge through these rods of a 0.001 farad capacitor charg-

Card 1/3

ACCESSION NR: AP4040308

ed to 6 to 8 kV produced the quadrupole magnetic field, which attained values as great as 3800 Oe at the wall of the discharge tube. Adjacent rods were separated by 15.5 cm, and the oscillating frequency of this system was 1 kilocycle/sec. The azimuthal magnetic field was measured with a magnetic probe that could be positioned anywhere along a radius of the discharge tube. From these measurements the radial distribution of the current was obtained. The total discharge current was measured with a current transformer (Rogovskiy belt). The plasma was probed with 3.2 and 0.82 cm microwaves. Both the transmitted and the reflected waves were observed, and from the phase shift of the reflected waves, the distance from the wall of the tube was determined at which the critical charged particle densities were attained. The loading of the exciting oscillator by the plasma was measured, and from this the conductivity of the plasma was determined. High speed photographs of the discharge were made. Many of the data obtained are presented graphically, and they are discussed in considerable detail. A skin effect was observed at pressures below 0.1 mm Hg; the thickness of the skin layer decreased with increasing current and decreasing pressure. When the quadrupole magnetic field was sufficiently great, the current was confined to an axial region of diameter about two-thirds that of the tube. Such localization of the discharge current did not alter the distribution of charged particles in the plasma; in particular, the positions of the critical charged particle

Card 2/3

ACCESSION NR: AP4040308

densities for microwave reflection did not vary with the quadrupole magnetic field. At pressures above 1 mm Hg a localization of the current was observed even in the absence of the quadrupole magnetic field. This was evinced by a drop in the reflected microwave intensity, indicating loss of radial symmetry of the charged particle density, and by large irregular fluctuations of the magnetic probe readings. The fluctuations of the readings of two magnetic probes separated by 14 cm in the axial direction were uncorrelated under these conditions. Application of the quadrupole magnetic field tended to stabilize the high pressure discharge. "The authors are grateful to B.M.Gutner and N.V.Uspenskaya for assistance in adjusting the high frequency oscillator, to Yu.S.Antonov and R.A.Laty*pov for assistance with the experimental work, and to M.S.Ravinovich, N.A.Boby*rev, I.S.Danilkin, A.A.Rukhadze, and I.S.Shpigel' for discussing the results." Orig.art.has: 10 figures.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva AN SSSR, Moscow (Physics Institute, AN SSSR)

SUBMITTED: 14Jun63

DATE ACQ: 19Jun64

ENCL: 00

SUB CODE: ME, EM

NR REF SOV: 006

OTHER: 000

Card 3/3

RAYZER, M.D

537.42

Instrument for Relative Measurements of Constant Magnetic Fields. I. B. Shpinel, M. D. Raizer & E. A. Myae. (*Radiotekhnika i Elektronika*, Dec. 1956, Vol. 1, No. 12, pp. 1515-1519.) The instrument, which utilizes the magnetic resonance absorption phenomenon, is designed for relative measurements of weakly inhomogeneous magnetic fields. The maximum measurable difference in the magnetic field is $\Delta H_{max} = \pm 5\%$, where H is the field strength. The error in ΔH is $\pm 2.4\%$. Measurements were made of the injection-field distribution ($H_0 = 150$ oersted) of the new 10 -kMev synchrophasotron of the Academy of Sciences.

RAYZER, M.D.

621.317.42   3234
Instrument for Relative Measurements of Alternating Magnetic Fields.
—I. S. Shpigel', M. D. Raizer & E. A.
Myae. (*Radiotekhnika i Elektronika*, Jan. 1957,
Vol. 2, No. 1, pp. 111–119.) The instrument
described is based on the principle of
resonance absorption, and is designed for
relative measurements of weakly inhomo-
geneous magnetic fields with maximum
differences of field strength between a pair
of points in the field of $\Delta H_{max} = 5\% H_0$.
The errors of the instrument do not exceed
$\pm 5\% \Delta H_{max}$ at $H_0 \approx 160$ oersted.

SHPIGEL', I.S.; RAYZER, M.D.; MYAE, E.A.

Effect of detuning magnitudes on amplitude of the first harmonics of nuclear magnetic resonance absorption. Zhur. tekh. fiz. 27 no.2:351-354 F '57.   (MIRA 10:4)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR, Moskva.
   (Nuclear magnetic resonance)   (Oscillators, Electron-tube)

L 18359-63   EWT(1)/BDS/EEC(b)-2/ES(w)-2   AFFTC/ASD/ESD-3/AFWL/IJP(C)/
SSD   P1-4/Pab-4   JXT(IJP)
ACCESSION NR: AP3003955   S/0057/63/033/007/0839/0842   75
                                                                                 71

AUTHOR: Rayzer, M.D.

TITLE: Compression of a high-frequency ring discharge by an increasing magnetic
       field

SOURCE: Zhurnal tekhnicheskoy fiziki, v.33, no.7, 1963, 839-842

TOPIC TAGS: plasma, ring discharge, plasma pinch

ABSTRACT: A high-frequency ring discharge induced in hydrogen at 0.1 to 0.01 mm
Hg in a cylindrical glass discharge chamber by an oscillating magnetic field was
pinched by a low-frequency magnetic field. The plasma was observed to detach it-
self from the walls of the chamber and to remain detached for several microseconds.
All the basic effects characteristic of powerful impulse discharges were presumab-
ly observed in these experiments. The cylindrical discharge chamber was 250 mm in
internal diameter and 60 mm high. The high-frequency magnetic field was produced
by a coil 70 cm long coaxial with the discharge chamber. This was excited either
at 360 kc by a capacitor discharge or at 6 Mc by a self-excited oscillator yield-
ing 2 microsec pulses. At 360 kc the magnetic field attained a maximum value of

Card 1/3

L 18359-63
ACCESSION NR: AP3003955 O

about 2000 Oe at the center of the chamber and induced electric fields of 250-400
V/cm. At 6 Mc the maximum magnetic field was about 50 Oe and the induced electric
field was 120 V/cm. The low-frequency magnetic field was produced by two coils,
one at each end of the chamber. These were excited at 10 kc by a capacitor dis-
charge and produced a peak magnetic field of about 3000 Oe and an induced electric
field of 6-15 V/cm. The low-frequency magnetic field alone was not sufficient to
produce a discharge in the gas. High speed photographs were made of the discharge
(two of these are reproduced) and the current was determined at various points in
the discharge by means of a Rogovskiy probe. A value of 3×10^{13} cgs units was ob-
tained for the conductivity of the plasma by measuring the change in the Q of the
magnet coil. The gas broke down at the walls of the chamber during the first few
half-cycles of the high-frequency field. The resulting shock waves ionized the
gas throughout the chamber. At a definite instant the breakdown at the wall of
the chamber ceased and a luminous ring formed in the region from 3 to 8 cm radius.
This pulsated for a long time with a 2 cm amplitude at 300-400 kc. The low-fre-
quency component of the current rose with the lowfrequency field until the plasma
broke away from the wall; then it decreased sharply in magnitude and changed sign.
It never exceeded 1 kA. The high-frequency current was about 5-7 kA during the ex-
tended pulsation period. The behavior described above was also observed when the

Card 2/3

L 18359-63
ACCESSION NR: AP3003955

two low-frequency magnet coils were connected so that their fields opposed each other. In this case, however, when the plasma broke away from the cylindrical wall of the chamber, it also broke away from the top and the bottom, and for about 2 microsec the current was confined to a region 2-3 cm thick in the central portion of the chamber. Subsequently, during the prolonged pulsation, the current was again distributed approximately uniformly in the vertical direction. "The author is deeply grateful to S.Ye.Grebenshchikov, A.G.Frank, and R.A.Latypov for assistance in the work." Orig.art.has: 5 figures.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva, Moscow (Physical Institute)

SUBMITTED: 12Jun62   DATE ACQ: 07Aug63   ENCL: 00

SUB CODE: PH   NO REF SOV: 003   OTHER: 002

Card 3/3

L. 14526-63   EWT(1)/EWG(k)/BDS/EEC(b)-2/ES(w)-2   AFFTC/ASD/ESD-3/
AFWL/SSD   P1-4/Po-4/Pab-4/Pz-4   AT/IJP(C)
ACCESSION NR: AP3005515   s/0057/63/033/008/1011/1020

                                                              87
AUTHOR: Rayzer, M. D.; Frank, A. G.; Kitayeva, V. F.
                                                              82

TITLE: Localization of high-frequency induction discharge

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 33, no. 8, 1963, 1011-1020

TOPIC TAGS: induction discharge, high-frequency discharge, high-frequency induction discharge, plasma, plasma discharge, hydrodynamic instability

ABSTRACT: A detailed investigation has been made of conditions for the localization of high-frequency induction discharge in H_2, He, Ar, and air at pressures of 1.0 to 30 mm Hg, discharge frequencies of 5 to 16 Mc, and discharge currents of 30 to 120 amp. It was found that during an hf induction discharge in a bell-shaped magnetic field at a gas pressure above 1.0 mm Hg, a plasma coil is generated which is separated from the walls of the vacuum chamber and which lasts during the whole hf pulse. The conductivity, temperature, and ionization rate of the plasma were measured, and the shape of the plasma coil was investigated by means of high-speed photography. A qualitative explanation of discharge localization is given on the basis of a hydrodynamic model of weakly ionized

Card 1/2

L 14526-63

ACCESSION NR: AP3005515

plasma. "The authors thank P. A. Laty*pov and L. I. Shumskiy for help in per-
forming the experiments and M. S. Rabinovich and A. A. Rukhadze for valuable
suggestions." Orig. art. has: 4 figures and 15 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physics
Institute, AN SSSR)

SUBMITTED: 12Jun62   DATE ACQ: 06Sep63   ENCL: 00

SUB CODE: PH   NO REF SOV: 005   OTHER: 004

Card   2/2

KOVRIZHNYKH, L.M.[translator]; RAYZER, M.D.[translator]; SHPIGEL',
I.S.[translator]; RABINOVICH, M.S., red.; BURTSEV, A.K.,
red.; POTAPENKOVA, Ye.S., tekhn. red.

[Plasma physics and magnetohydrodynamics] Fizika plazmy i mag-
nitnaia gidrodinamika; sbornik statei. Moskva, Izd-vo inostr.
lit-ry, 1961. 302 p. Translated articles.   (MIRA 15:3)
(Plasma (Ionized gases)) (Magnetohydrodynamics)

GREBENSHCHIKOV, S.Ye.; RAYZER, M.D.; RUKHADZE, A.A.; FRANK, A.G.

Reflection and refraction of shock waves in magnetohydro-
dynamics. Zhur.tekh.fiz. 31 no.5:529-538 My '61.   (MIRA 14:7)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR, Moskva.
        (Shock waves)   (Plasma (Ionized gases))
                        (Magnetohydrodynamics)

26.2321

AUTHORS: Grebenshchikov, S. Ye., Reyzer, M. D., Rukhadze, A. A.,
                and Frank, A. G.

TITLE: Reflection and refraction of shock waves in magnetohydro-
                dynamics

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 5, 1961, 529-538

TEXT: The authors studied the reflection and refraction of converging
ring-type shock waves by a cylindrical "magnetic wall". As the front
width of the shock waves was much smaller than the radial dimensions of
the magnetic wall, the experimental results could be interpreted theoreti-
cally in terms of the interaction of a plane shock wave with the magnetic
wall. The experimental arrangement is schematically shown in Fig. 1. The
shock wave was produced electrodynamically in a 360-kc gas discharge. Two
parallel-connected 0.2-μf capacitors were used as a power source. Two
copper coils surrounding a vacuum chamber had an inductance of 0.57 μh.
A cylindrical magnetic wall was produced by means of a quasi-static
magnetic field ($f = 2.5$ kc/sec) which had been generated by the discharge

Card 1/8

of two parallel-connected 150-µf capacitors through two coils (also
connected in parallel) with a total inductance of 13.2 µh. The distribu-
tions of the magnetic fields are graphically represented in Fig. 2. In a
detailed theoretical discussion, the authors derive the following set of
equations for the velocities of reflected and refracted shock waves:

$$\left. \begin{array}{l} \alpha + \beta \left(\alpha - x\right)\left(\alpha - z\right) = h + yz, \\[4pt] \dfrac{y\alpha + \eta}{\alpha - x} + \dfrac{\beta}{2}\left[(\gamma - 1)\alpha - (\gamma + 1)z + 2x\right] = 0, \\[4pt] \eta + h\,\dfrac{2y - \gamma z}{y - z} = \dfrac{y}{2}\left[2y - (\gamma + 1)z\right]. \end{array} \right\} \qquad (16)$$

in the dimensionless parameters

$$\left. \begin{array}{c} x = \dfrac{u_1}{u_0}, \qquad y = \dfrac{u_2}{u_0}, \qquad z = \dfrac{v}{u_0}, \\[6pt] \eta = \dfrac{1}{M_0^2}, \quad h = \dfrac{H_{z0}^2}{8\pi \rho_0 u_0^2}, \quad \beta = \dfrac{p_1}{p_0} = \dfrac{\gamma + 1}{\gamma - 1 + 2\eta}, \quad \alpha = \dfrac{v_2}{u_0} = \dfrac{2(1 - \eta)}{\gamma + 1}. \end{array} \right\} \quad (15)$$

Card 2/3

Reflection and...

B104/B205

Here, the usual symbols ρ, p, and v with the index o refer to a gaseous state that exists without the magnetic field of the shock wave. The index 1 refers to quantities behind the shock wave (Fig. 6). u_1 and u_2 are the velocities of the refracted and reflected shock waves, respectively; v is the velocity of the gas between these waves. Next, approximate solutions are derived for two limiting cases, i.e., for very weak and very strong magnetic fields. The solutions

$$
\left.
\begin{aligned}
u_1 &= v_1 - c_1, \\
u_2 &\simeq u_0, \\
v &\simeq v_1.
\end{aligned}
\right\}
\tag{17}
$$

and

$$
\left.
\begin{aligned}
u_1 &= -u_0 \frac{2(\gamma - 1)}{(\gamma + 1)}, \\
u_2^2 &= c_0^2 + \frac{H_2^2}{4\pi\rho_0}, \\
v &\simeq 0
\end{aligned}
\right\}
\tag{18}
$$

Card 3/8

are obtained. Summing up: On the strength of experimental results, it was possible to neglect the ionization energy as compared to the kinetic energy of the gas since the former amounts to less than one-tenth of the kinetic energy at velocities $u > 2 \cdot 10^6$ cm/sec. It is shown that the reflection of a shock wave from the magnetic wall is determined essentially by the parameter $h = H^2/8\pi\rho_0 u_0^2$ which expresses the ratio of the density of magnetic energy to the density of kinetic energy in the shock wave. The experimental conditions showed that the velocity u_0 of the incoming wave and the gas pressure p_0 are interrelated by $u_0 \sim 1/\sqrt{p_0}$. This velocity decreases as the molecular weight of the gas increases. In the present case, the quantity $\rho_0 u_0^2$ again depends neither on the type of gas nor on pressure. Thus, h is determined only by the strength of the magnetic field at the point of reflection, even in discharges in different gases and at different pressures. Consequently, the reflection of shock waves must be equal with equal fields. The calculated values are determined chiefly by $\gamma = c_p/c_v$. Thus, different maximum velocities u_1 of reflected

Card 4/8

Reflection and...   S/057/61/031/005/004/020
                                                             B104/B205

waves are obtained for different values of γ and also different values of h at which maximum velocities are attained. For $\gamma = 5/3$, e.g., one obtains $u_{1max} = -u_o/2$, $h_{max} \simeq 4.5$; for $\gamma = 7/5$, $u_{1max} = -u_o/3$ and $h_{max} \simeq 6.7$. For $\gamma = 5/3$ the experimental results agree well with the theoretical ones.

With a field of about $4 \cdot 10^3$ oe, the velocity of the reflected wave is half as high as that of the incoming wave. This corresponds to $h \sim 4$, which means that the gas behind the shock wave dissociates almost entirely. Good agreement with the experimental results is obtained even with weak

magnetic fields (less than $2 \cdot 10^3$ oe, i.e., $h < 1$). An increase in the velocity of the shock waves passing through the magnetic field is obtained with all magnetic field strengths, which is in accordance with theory. Thus, the velocity of a refracted wave in a field of about $4 \cdot 10^3$ oe is three times as high as that of the incoming wave and becomes equal to the magnetosonic velocity. R. A. Latypov is thanked for help in experiments, and A. T. Matachun for calculations done with the "Ural" computer. There are 8 figures and 5 Soviet-bloc references.
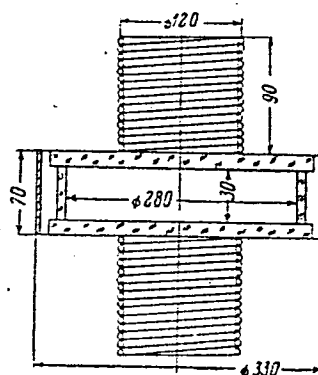
Card 5/8

Reflection and...

S/057/61/031/005/004/020
B104/B205

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR Moskva (Institute of Physics imeni P. N. Lebedev, Academy of Sciences USSR, Moscow)

SUBMITTED: July 25, 1960

Fig. 1

Card 6/8

ANDRYUKHINA, E.D.; GREBENSHCHIKOV, S.Ye.; RABINOVICH, M.S.; RAYZER, M.D.;
        SAFRONOV, A.Ya.; SHPIGEL', I.S.

Some special characteristics of induction gas discharges. Zhur. tekh.
fiz. 30 no.5:529-538 My '60.   (MIRA 13:8)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR, Moskva.
        (Electric discharges in gases)

GRIDNA, V.P., mlad. nauchn. sotr., starshiy bibliograf; RAYZER,
M.D., kand. fiz.-mat. nauk; KOLESNIKOV, V.N., kand. fiz.-
matem. nauk; ANTROPOV, Ye.T., ml. nauchn. sotr.; SHPIGEL',
I.S., kand. tekhn. nauk, otv. red.; KOVRIZHNYKH, L.M.,
kand. fiz.-matem. nauk, otv. red.

[Plasma physics; bibliographic index, 1955-1961] Fizika
plazmy; bibliograficheskii ukazatel', 1955-1961. Moskva,
Nauka, 1964. 354 p.   (MIRA 17:11)

1. Moscow. Fizicheskiy institut. Biblioteka.

L 17813-65   EWA(k)/EWT(1)/EWT(m)/EEC(t)   DIAAP/SSD/SSD(b)/AFWL/ESD(gs)
ACCESSION NR: AP4045329   S/0089/64/017/003/0185/0188

AUTHOR: Rayzer, M. D. ; Tsy*tovich, V. N.

TITLE: On the mechanism of X-ray and neutron emission by powerful pulse discharges

SOURCE: Atomnaya energiya, v. 17, no. 3, 1964, 185-188

TOPIC TAGS: powerful pulse discharge, X ray emission, neutron emission, Cherenkov radiation, deuterium, nuclear reaction, plasma wave

ABSTRACT: It has been found earlier (L. A. Artsy*movitch et al. , Atomnaya energiya #3, 84,1956) that, under certain conditions, powerful pulse discharges in deuterium produce hard X-ray and neutron radiations. It has also been established that the nuclear reactions of observed intensity can be initiated only by interaction of deuterons with energies many times higher than those corresponding to the plasma temperature, and that the X-ray photons have a much higher energy than the electrons can acquire through the potential difference between the

Card 1/2

L 17813-65
ACCESSION NR: AP4045329

electrodes. The present authors give a possible qualitative explanation of these
phenomena. They assume that a fast particle is subjected to very numerous
processes of stimulated Cherenkov absorption and emission of plasma waves.
On the average, their energy is increased, similarly to the Fermi statistical
acceleration. Several features of the observed phenomena can be qualitatively
explained with this assumption. Orig. art. has: 2 figures, 10 equations

ASSOCIATION: None

SUBMITTED: 04Nov63   ENCL: 00

SUB CODE: NP   NO REF SOV: 012   OTHER: 000

Card 2/2

RAYZER, M.D.; STRELKOV, P.S.; FRANK, A.G.

Localization of a linear high-frequency current in a gas
by a quadrupole magnetic field. Zhur. tekh. fiz. 34 no.6:
1040-1049 Je '64.   (MIRA 17:9)

1. Fizicheskiy institut imeni Lebedeva AN SSSR, Moskva.

RAYEV, I. Ya.

"Aerial Survey and Aerial Photogrammetry", Bibliographical Index of Soviet Literature, 1951.

KOLOSOVA, A.Yu.; RAYZER, P.Ya.

[Use of aerial photography in forest valuation] Ispol'zovanie aerosnimkov pri taksatsii lesa. Moskva, Goslesbumizdat, 1953. 115 p.   (MLRA 7:2)
     (Forests and forestry--Valuation) (Photography, Aerial)

RAYZER, P.

"Graphic Determination of the Slant Angles of Aerial Photographs," by P. Rayzer, Candidate of Technical Sciences, Grazhdanskaya Aviatsiya, No 5, May 55, p 26

A graphic method of determining slant angles in stereotopographic plotting is proposed as a substitute for the analytical and tabular procedure used in making topographic plans with scales of 1:25,000-1:2000.

A reduction in work load and a degree of accuracy equal to that of the analytical method is claimed.

SUM. 1287

RAYZER, P.Ya., kandidat tekhnicheskikh nauk, dotsent.

Textbooks on photogrammetry for nongeodetic schools of higher
education and technical schools. Sbor.st.po geod. no.9:117-122
'55.   (Photogrammetry)   (MIRA 9:6)

RAYZER, P., kandidat tekhnicheskikh nauk.

Foreign aerial camera. Grazhd.av.13 no.4:37-38 Ap '56.
(Photography, Aerial) (Cameras)   (MLRA 9:7)

RAYZER, P.Ya.

       Aerial photogrammetry and aerial methods in journals of abstracts
of the Academy of Sciences of the U.S.S.R. Izv.Vses.geog.ob-va 88
no.2:203-205 Mr-Ap '56.   (MLRA 9:8)
           (Aerial photogrammetry--Abstracting and indexing)

3(4)   SOV/154-58-6-9/22
AUTHOR: Rayzer, P. Ya., Docent, Candidate of Technical Sciences

TITLE: Some Problems Involved in the General Theory of Aerophoto-
               graphic Interpretation (Nekotoryye voprosy obshchey teorii
               deshifrirovaniya aerosnimkov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i
               aerofotos"yemka, 1958, Nr 6, pp 85-93 (USSR)

ABSTRACT: For the time being, the problems of the general theory of
               aerophotographic interpretation are still insufficiently worked
               out. The main publication sources show that the same task is
               quite differently comprehended by different authors. - The
               character of interpretation is studied here, and this is for-
               mulated as follows: The interpretation of aerial photographs
               is the identification of the investigated objects and phenom-
               ena on the earth's surface, including those represented in the
               aerial photograph and those not appearing in it. Further, the
               interpretation is the determination of the qualitative and
               quantitative characteristics and properties of aerial photo-
               graphs, as well as the clarification of interactions between
Card 1/3   them and of mutual relations. - At present, much is not clear

concerning the classification of interpretation characteristics and the part played by them in the interpretation. This problem is investigated here, and a classification of characteristics is given: 1) Direct (physical) characteristics - dimensions (plane and height measures), shape (contours, outlines), tone (color), structure (texture), shadow (own and striking shadow). 2) Indirect (logical) characteristics - mutual relations between objects and phenomena in space, as well as mutual relations of objects and phenomena with respect to time.
Not less important is the investigation of the factors determining the most correct and complete solution of the main task of interpretation formulated above. A scheme is given here to classify the factors which determine the survey conditions, the properties of aerial survey and the possibility of interpretation.
The wish for a book entitled "Elements of General Theory of Aerophotographic Interpretation" is expressed.
There are 9 Soviet references.

Card 2/3

SOV/154-58-6-9/22

Some Problems Involved in the General Theory of Aerophotographic Interpretation

ASSOCIATION: Leningradskaya voyenno-vozdushnaya inzhenernaya akademiya im.
                A. F. Mozhayskogo (Leningrad Academy for Air Force Engineers
                imeni A. F. Mozhayskiy)

SUBMITTED: May 20, 1958

Card 3/3